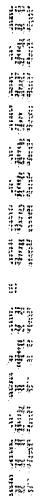# CLAIMS

1. A system for compensating for timing violations of time restricted data being transmitted over a bursty communication channel, the system comprising:

    a retriever, coupled to a buffer, for retrieving the time restricted data from the buffer, at a retrieval rate;

    a buffer level monitor, coupled to the buffer, for monitoring the level of time restricted data in the buffer at a monitoring rate; and

    a controller coupled to the buffer level monitor and to the retriever, for setting the retrieval rate and the monitoring rate.

2. The system according to claim 1, wherein the controller sets the retrieval rate and the monitoring rate, according to the level of the time restricted data in the buffer.

3. The system according to claim 1, wherein the retrieval rate is increased when the difference between the level of the time restricted data in the buffer and a predefined threshold level exceeds a predefined difference threshold.

4. The system according to claim 1 wherein the retrieval rate being responsive to the difference between the level of the time restricted data in the buffer and a predefined threshold level.

5. The system according to claim 1 wherein the retrieval rate and the monitoring rate are responsive to a difference between the buffer behavior pattern to a predefined buffer behavior pattern.

6. The system of claim 1 wherein the retrieval rate and the monitoring rate are responsive to low frequency changes in the level of time restricted data in the buffer.

7. The system of claim 1 wherein the controller is configured to change the monitoring rate and the retrieval rate to compensate for jitter included in the time-restricted data.

8. The system of claim 1 wherein the removal interval is responsive to a current bit rate of the time restricted data.

9. The system of claim 1 wherein the controller sets the monitoring rate in response to the level of jitter included in the time restricted data.

10. The system of claim 1 wherein the monitoring rate and the retrieval rate are set in view of a statistical analysis of the level of time restricted data in the buffer.

11. The system of claim 1 wherein the controller is configured to set the monitoring rate in response to changes in the bit rate of arriving time-restricted data.

12. The system according to claim 1, wherein the controller modifies the retrieval rate, when said controller detects that the behavior of said current level exceeds a given behavior and adjusts said retrieval rate accordingly.

13. The system according to claim 1, wherein said buffer is a first in first out buffer.

14. The system according to claim 1 wherein the time restricted data is in a form of MPEG Transport packet.

15. The system according to claim 1 wherein the type of said bursty communication channel is selected from the list consisting of:

  Ethernet;

  Fast Ethernet;

  Gigabit Ethernet;

  TCP/IP;

  RTP; and

  UDP/IP.

16. The system of claim 1 wherein the timing violations are selected from the group consisting of:

  delay; and

  Jitter.

17. A system for transferring time restricted data over a jitter including channel, the system comprising:

  a retriever, coupled to a buffer, for retrieving the time restricted data from the buffer, at a retrieval rate;

  a buffer level monitor, coupled to the buffer, for monitoring the level of time restricted data in the buffer at a monitoring rate; and

  a controller coupled to the buffer level monitor and to the retriever, for setting the retrieval rate and the monitoring rate.

18. The system of claim 15 further comprising at least one entity selected from the group consisting of :

a decapsulator, connected to said buffer, wherein said decapsulator extracts said time restricted data from bursty channel format packets and wherein said decapsulator provides said time restricted data to said buffer;

a receiving end communication interface, connected to said decapsulator, wherein said receiving end communication interface receives said bursty channel format packets from said bursty communication channel, and wherein said receiving end communication interface provides said bursty channel format packets to said decapsulator;

a transmitting end communication interface, for transmitting said bursty channel format packets to said receiving end communication interface over said bursty communication channel;

an encapsulator, connected to said transmitting end communication interface, for encapsulating said time restricted data in said bursty channel format packets;

a time restricted data source, connected to said encapsulator; and

a communication unit, coupled to the retriever;

19. The system according to claim 15, wherein said retriever is further connected to a communication unit selected from the list consisting of:

a decoder, for decoding said time restricted data;

a transmitter, for transmitting said time restricted data to a remote receiver; and

a multiplexer, for multiplexing said time restricted data.

20. The system according to claim 19, wherein said multiplexer is further connected to said transmitter, and wherein said transmitter transmits multiplexed time restricted data received from said multiplexer.

21. System for transferring time restricted data over a bursty communication channel, the system comprising: a log recorder; a buffer level emulator coupled to said log recorder; a controller coupled to said buffer level emulator; and a retriever, coupled to said controller, for retrieving time restricted data from a buffer, at a retrieval rate, wherein said controller sets said retrieval rate.

22. The system The system according to claim 21, wherein said log recorder records the information respective of said time restricted data, in a log file;

    said buffer level emulator determines an emulated buffer level, according to said log file;

    said buffer level emulator provides said emulated buffer level to said controller; and

    said controller sets said retrieval rate according to said emulated buffer level.

23. The system according to claim 22, further comprising a buffer coupled to said retriever, for temporary storage of said time-restricted data.

24. The system according to claim 21, further comprising a decapsulator coupled to said log recorder,

    wherein said decapsulator extracts said time restricted data from bursty channel format packets, and wherein said decapsulator provides information respective of said time restricted data to said log recorder.

25. The system according to claim 23, further comprising a decapsulator coupled to said buffer,

wherein said decapsulator extracts said time restricted data from bursty channel format packets, and wherein said decapsulator provides said time restricted data to said buffer.

26. The system according to either of claims 24 and 25, further comprising a receiving end communication interface, coupled to said decapsulator,

wherein said receiving end communication interface receives said bursty channel format packets from said bursty communication channel, and wherein said receiving end communication interface provides said bursty channel format packets to said decapsulator.

27. The system according to claim 26, further comprising:

a transmitting end communication interface, for transmitting said bursty channel format packets to said receiving end communication interface over said bursty communication channel; and

an encapsulator, coupled to said transmitting end communication interface, for encapsulating said time-restricted data in said bursty channel format packets.

28. The system according to claim 27, further comprising a time restricted data source, coupled to said encapsulator.

29. The system according to claim 28, wherein said retriever is further coupled to a communication unit selected from the list consisting of:

a decoder, for decoding said time restricted data;

a transmitter, for transmitting said time restricted data to a remote receiver; and

a multiplexer, for multiplexing said time restricted data.

30. The system according to claim 29, wherein said multiplexer is further coupled to said transmitter, and wherein said transmitter transmits multiplexed time restricted data received from said multiplexer.

31. The system according to claim 21, wherein said time-restricted data is in the form of MPEG transport packets.

32. The system according to claim 21, wherein the type of said bursty communication channel is selected from the list consisting of:

    Ethernet;

    Fast Ethernet;

    Gigabit Ethernet;

    TCP/IP;

    RTP; and

    UDP/IP.

33. The system according to claim 21, wherein said controller sets a zero level for the volume of said time restricted data within said buffer.

34. The system according to claim 33, wherein said zero level is variable.

35. The system according to claim 21, wherein said controller modifies said retrieval rate, when said controller detects that the behavior of said current level exceeds a given behavior and adjusts said retrieval rate accordingly.

36. The system according to claim 21, wherein said buffer is a first in first out buffer.

37. The system according to claim 27, wherein said time-restricted data includes null portions and wherein said encapsulator stores an indication for the existence of said null portions in said bursty channel format packets.

38. System for transferring time restricted data over a bursty communication channel, the system comprising:

a virtual buffer;

a retriever for retrieving said time restricted data at a retrieval rate, from a decapsulator; and

a processor coupled to said virtual buffer and to said retriever,

wherein said processor sets said retrieval rate.

39. The system according to claim 38, wherein, said virtual buffer receives information respective of said time restricted data, from said decapsulator;

wherein said virtual buffer determines a virtual level of said time restricted data according to said information; and

wherein said processor determines said retrieval rate according to said virtual level.

40. The system according to claim 39, further comprising a decapsulator, coupled to said virtual buffer and to said retriever,

wherein said decapsulator extracts said time restricted data from bursty channel format packets, and wherein said decapsulator provides said time restricted data to said retriever.

41. The system according to claim 40, further comprising a receiving end communication interface, coupled to said decapsulator,

wherein said receiving end communication interface receives said bursty channel format packets from said bursty communication channel, and wherein said receiving end communication interface provides said bursty channel format packets to said decapsulator.

42. The system according to claim 41, further comprising:

a transmitting end communication interface, for transmitting said bursty channel format packets to said receiving end communication interface over said bursty communication channel; and

an encapsulator, coupled to said transmitting end communication interface, for encapsulating said time-restricted data in said bursty channel format packets.

43. The system according to claim 42, further comprising a time restricted data source, coupled to said encapsulator.

44. The system according to claim 43, wherein said retriever is further coupled to a communication unit selected from the list consisting of:

a decoder, for decoding said time restricted data;

a transmitter, for transmitting said time restricted data to a remote receiver; and

a multiplexer, for multiplexing said time restricted data.

45. The system according to claim 44, wherein said multiplexer is further coupled to said transmitter, and wherein said transmitter transmits multiplexed time restricted data received from said multiplexer.

46. The system according to claim 38, wherein said time-restricted data is in the form of packets, and wherein the type of said packets is MPEG Transport.

47. The system according to claim 38, wherein the type of said bursty communication channel is selected from the list consisting of:

Ethernet;

Fast Ethernet;

Gigabit Ethernet;

TCP/IP;

RTP; and

UDP/IP.

48. The system according to claim 38, wherein said controller sets a zero level for the volume of said time restricted data within said buffer.

49. The system according to claim 48, wherein said zero level is variable.

50. The system according to claim 38, wherein said controller modifies said retrieval rate, when said controller detects that the behavior of said current level exceeds a given behavior and adjusts said retrieval rate accordingly.

51. The system according to claim 38, wherein said buffer is a first in first out buffer.

52. The system according to claim 42, wherein said time-restricted data includes null portions and wherein said encapsulator stores an indication for the existence of said null portions in said bursty channel format packets.

53.   Method for controlling a buffer containing time restricted data received over a bursty communication channel, the method comprising the steps of:

   detecting if the behavior pattern of said buffer exceeds a given behavior pattern; and

   modifying a retrieval rate of retrieving said time restricted data from said buffer, by decreasing said retrieval rate when the current level of said time restricted data in said buffer is on the fall, and increasing said retrieval rate when said current level is on the rise.

54.   The method according to claim 53, further comprising a step of retrieving said time-restricted data at said modified retrieval rate.

55.   The method according to claim 53, further comprising a preliminary step of monitoring said current level.

56.   The method according to claim 53, further comprising a step of monitoring said current level, before said step of detecting, and a step of retrieving said time restricted data at said modified retrieval rate, after said steps of decreasing and increasing.

57.   The method according to claim 54, further comprising a step of updating said behavior pattern.

58.   The method according to claim 56, further comprising a step of updating said behavior pattern.

59.   Method for controlling a buffer containing time restricted data received over a bursty communication channel, the method comprising the steps of:

setting a time interval between sequential retrievals of time restricted data from a buffer and a monitoring time at which the buffer level of said time restricted data in said buffer is to be monitored;

monitoring said buffer level at said monitoring time;

increasing said interval when said buffer level is lower than an upper threshold; and

decreasing said interval when said buffer level is lower than a lower threshold.

60. The method according to claim 59, further comprising a step of setting said monitoring time after said step of increasing, after said step of decreasing, and when said buffer level is equal to said threshold.

61. The method according to claim 59, further comprising a preliminary step of detecting if said buffer level exceeds a predetermined zero level.